

SPEEDY RED CROSS DRIVE SEEN IN Y-12

New Cyclotron In Y-12 Area Fuses Elements

63-Inch Model First Of Type; Designed By ORNL Personnel

The fusion of light elements to form heavier elements—the opposite of the widely publicized nuclear fission which makes the atom bomb and nuclear reactors a practical reality—has been achieved in Oak Ridge National Laboratory operations in the Y-12 plant, it has been announced. The fusion is made possible by a special purpose cyclotron now in use at in Bldg. 9204-3 occupied by ORNL personnel operating the cyclotron for the U. S. Atomic Energy Commission.

New Research Field Opened

The new cyclotron, a 63-inch model, is the first such machine designed specifically to accelerate heavy particles. In the process, nitrogen ions are accelerated to an energy of 25,000,000 electron volts (Mev), and with this energy it is possible to bring about the nuclear fusion of elements. Nitrogen nuclei are forced to combine with nuclei of such elements as oxygen and carbon to form the heavier nuclei of fluorine, sodium, and aluminum. These new and interesting reactions open a whole new field of fundamental research in nuclear physics, according to Dr. R. S. Livingston, head of the ORNL Electromagnetic Research Division in the Y-12 plant area, which operates the cyclotron.

The first paper describing several unusual reactions produced by the new cyclotron was published in the January 15, 1953, issue of "The Physical Review," chief publication of the American Physical Society. The author was Dr. Alexander Zucker. To date, some 20 new nuclear reactions have been identified and described.

Reaction Reverse Of Fission

The nuclear-fusion reactions obtained are in some ways the reverse of nuclear fission. In the fission of a uranium atom, the large nucleus breaks into two smaller nuclei and several smaller particles (neutrons). These fragments fly apart with great velocities, releasing a considerable amount of energy. In the case of fusion, energy is supplied to drive one nucleus into another and the two combine to form a larger nucleus, and several particles (usually protons or alpha particles) are given off. It is not expected, however, that the fusion reactions produced in the cyclotron could be sustained as a chain reaction.

At 25 Mev, nitrogen nuclei have sufficient energy to enter into reactions with nuclei of other light elements such as beryllium, boron, carbon, nitrogen, and oxygen. Sulfur is the heaviest element that has been successfully bombarded. An energy of at least 70 Mev would be required for the penetration of the heaviest atoms, such as uranium.

The 63-inch cyclotron was
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THIS GROUP OF Y-12ERS WILL COORDINATE THE RED Cross fund drive in the plant next week. Seated are W. S. Herron, assistant plant chairman; J. M. Herndon, campaign chairman; and L. V. Thornton. Standing, from left, are Joe Williams, C. W. McCollum, Pat Ridge, Frances Sachs, J. D. Bowers, Nelson Tibbatts and Carl Roddy.

Credit Union Directors Vote To Discontinue Life Insurance Provisions Because Of Expense

The board of directors of the Y-12 Employees Credit Union voted at its last meeting to discontinue the life insurance provisions for its shareholders, effective February 28. This means that after that date the policy granting survivors or beneficiaries of Credit Union shareholders twice the amount of their investment in the organization up to \$1,000 will be cancelled.

The directors declared that the records of the Credit Union prove that the insurance policy cost is too expensive for the benefits received by the shareholders. In the past the return on this policy has been such a low percentage of the cost of the premium on the policy that the directors deemed it to be in the best interests of the shareholders to eliminate this feature.

Tool Engineers Request Charter For New Chapter

The recently organized East Tennessee Chapter of the American Society of Tool Engineers has obtained well more than the required 50 members to get a charter and has applied for the organizational papers, according to Merle B. Hilton, of the Y-12 Engineering Department, temporary secretary of the group. The next meeting of the chapter will be held in Oak Ridge at a date to be set when the time of receipt of the charter is known. The chapter has a membership of about 60 in Oak Ridge and Knoxville.

Physics Seminar To Hear Discussion By Dr. Allen

Dr. Ralph Allen, of the Oak Ridge Institute of Nuclear Studies and the Oak Ridge National Laboratory, will speak at the weekly meeting of the Oak Ridge Physics Seminar to be held Friday, February 27. The session is set for 3 p. m. in the auditorium of the ORNL Research Building.

Dr. Allen's topic will be "Slow Neutron Cross Sections Measured With A Crystal Spectrometer." Y-12ers interested in the subject are invited to attend the meeting.

SPAGHETTI, MEAT SAUCE IS THURSDAY SPECIAL

Italian spaghetti with meat sauce will be the entree on the Thursday Special Lunch at the Y-12 cafeteria Thursday, February 27. The entree, one vegetable, choice of salad or dessert, rolls and butter sells for only 50 cents.

Y-12 Safety String Broken At 46 Days

Safety glasses again have saved a Y-12 employee from possible total blindness when the protective device stopped a flying piece of metal from entering the eye of a machinist in the Maintenance Shops Department last Thursday. As it was, the glasses were struck with such force that a lens was punctured and particles of glass entered the employee's eye, requiring hospitalization for the employee.

The mishap is classed as a lost time accident and broke the Y-12 Plant string of accident-free days at 46.

The official report of the Safety Department on the accident follows:

"A machinist was hospitalized after being the victim of a eye injury at 8:10 a.m. February 19, in Bldg. 9709. The injured man was operating a turret lathe, using a parting tool on mild steel stock when the tool bit broke and a fractured part of the bit 5/32nds by 5/32nds by 17/32nds of an inch in size flew with such force that when it hit the right lens of the employee's bifocal safety glasses the lens was punctured. The blow caused the lens to shatter on the eye side and particles of glass cut the eyeball."

Professional Group To Meet At ORINS Wednesday Night

The Oak Ridge Professional Group on Nuclear Science of the Institute of Radio Engineers will hold its next meeting tonight Wednesday, February 25, at 7:30 o'clock in Room 20 of the Oak Ridge Institute of Nuclear Studies.

Dr. Otmar Stuetzer, who was a German scientist during World War II and now doing research at Wright Field, Dayton, Ohio, will speak on "A Few Aspects of Transistor Physics." Dr. Stuetzer is internationally noted for his work on the "Fieldistor," a transistor with unusually high input impedance.

Campaign Opens In Plant Monday With Objective Of Reaching Goal In Record Time Set By Committee

Oak Ridge Chapter Seeking \$25,019 To Aid Local And National Functions Of Organization; Y-12ers' Share In Cause Is Placed At \$3,500

With a plant committee formed to coordinate the fund raising appeal of the Oak Ridge Chapter of the American Red Cross Y-12ers are poised for a speedy campaign as the drive opens next Monday, March 2. The citywide campaign is scheduled to last for two weeks but it is expected that the Y-12 goal of \$3,500 will be reached in one day as generous employees dig promptly in their pockets to answer the call of the Red Cross.

Y-12ers Lead Five Years

In past years Y-12ers have been in the forefront in responding to such worthy causes and for the past five years the plant has been the first in its classification in Oak Ridge to report "over the top" in its campaigns for the Red Cross. It is expected that this enviable reputation will be maintained this year.

Jesse M. Herndon, Process Division Superintendent and chairman of the plant committee; and his assistant chairman W. S. Herron, Chemical Division Administrative Assistant; completed organization of the plant committee last week. Committee members include Frances Sachs, Library; C. W. McCollum, Training and representing the Industrial Relations Division; L. V. Thornton, ADP; Joe Williams, Development; Pat Ridge, Laboratory; J. D. Bowers, Manufacturing Offices; Nelson Tibbatts, Maintenance; and Carl Roddy, Engineering.

May Use Deductions

The committee expects to receive pledge cards this week and have them distributed to various departments throughout the plant in ample time to launch the campaign on time. Y-12 donors may contribute either by cash or through payroll deduction, with the latter plan offering one deduction for weekly and hourly paid employees on Friday, April 24, and for monthly paid Y-12ers on Monday, April 27.

The Oak Ridge Chapter of the Red Cross is asking for \$25,019 this year, an increase of \$1,849 over last year's goal of \$23,170. The increase is necessary because of heavier demands by the national organization to care for servicemen and other vital needs. The local chapter budget is the same as last year, according to Paschal Hamrick, of the Y-12 Personnel Department who also is chairman of the city campaign committee.

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Answering Red Cross Call Aids Humanity

Every month in the year thousands of persons in need or distress reach out to the Red Cross for the help they must have, help that comes from the generous efforts and support of housewives, businessmen, industrial workers, school children, professional workers, next door neighbors and countless others.

In a time of tension and cynicism it is well to be reminded of the inherent goodness of people, to call attention to their constant voluntary efforts to make life a little better for the men and



women in the armed forces, for hospitalized veterans, for disaster sufferers, and for those in need in other lands.

Although the heart and hands of the Red Cross are provided by hundreds of thousands of volunteers, money is also needed to collect blood; to provide financial assistance for servicemen, veterans, and their dependents; to furnish emergency aid and rehabilitation to disaster victims—services that can be provided only through the voluntary financial support of millions of Americans.

Every March Red Cross volunteers turn to their neighbors and ask help in answering the call of those in need. Let us respond generously to this appeal so that we can answer the call of humanity through the Red Cross.

SAFETY SCOREBOARD

Your Plant Has
Operated
Three Days
Without A Lost Time
Accident
Through February 22

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Science Fair Winners To Get Cash Awards

More than \$1,000 in awards will be presented to the 'teen age participants in the Fourth National Science Fair to be held in Oak Ridge May 7, 8 and 9. Four first "wish awards," of \$125 each, will be given. These prizes will enable the winners to purchase equipment needed in connection with their scientific projects. There also are four second place awards of \$75 each and four third place prizes of \$50 each.

Only those boys and girls attending classes in the last three years of a secondary school, whose exhibits have won highest honors in area competition, will be coming to the fair, which is being sponsored by Carbide and Carbon Chemicals Company and the Oak Ridge Institute of Nuclear Studies. The fair will be administered by Science Service.

The contestants will set up their exhibits in the American Museum of Atomic Energy in Oak Ridge. While in Oak Ridge the fair participants will be taken on an unclassified tour of the city.



The following Y-12 employees were patients in the Oak Ridge Hospital last week: Jeanette Richbourg, Medical; Audrey G. Curtis, Assay Laboratory; Ralph H. Norman and L. E. Hart, Field Maintenance; Charles Viar, Maintenance Shops; Arbana Honeycutt, Laundry; M. J. Stapleton and Richard Butler, Product Processing; Anna P. Smith, Analytical Laboratory; Lee E. Maxwell, Guard; J. P. Wheeler, Chemical; Annie Mae Fleener, Uranium Processing; Barbara Ann Bond, Uranium Control and Computing; Claude H. Close, Research Services; Horace L. Spurgeon, Transportation; W. L. Coggins, Planning and Estimating; Ernest Bentley, Safety.

Dr. Kimball Will Address Analytical Group March 2

The Analytical Group of the East Tennessee Section of the American Chemical Society will hold its next meeting, Monday, March 2, at 8 o'clock in the West Lounge of the Ridge Recreation Hall.

Dr. Allyn W. Kimball, of the Oak Ridge National Laboratory mathematics panel, will discuss "The Design of Experiments" in which he will outline the contributions a statistician can make in setting up experiments, particularly where more than one variable is involved. Dr. Kimball is a graduate of the University of Buffalo and holds advanced degrees from M. I. T. and the University of North Carolina.

Total value of gift boxes sent by the Junior Red Cross to children overseas was equivalent to a five-cent contribution from each of the 19,000,000 Junior Red Cross members.



Spring has just GOTTA be just around the corner—'way down southeast in the land of Knoxville pussy willows and forsythia are budding—and right here in Grand Central Depot (The Bulletin and Recreation Office) Hobey Thomas, Y-12's boon to the haberdashery business, dropped in clad in a bright yaller sports shirt that took the place of the bashful sun that declined to show that day—jealous perhaps.

The Assay Laboratory reports Glen Curtis and Walter Rice on the aching and ailing list . . . Annie Rogers spent last week in Bristol. . . S. M. Maxfield is vacationing for a couple of weeks but didn't leave a forwarding address.

The occupational hazards of this newspaper business are rough—our contemporary editor of The Carbide Courier, Marc V. Sims, was in the Oak Ridge Hospital last week reportedly suffering from high blood pressure . . . What a business . . . Sims is former assistant editor of The Bulletin and has a lot of friends here wishing him a speedy recovery.

Congratulations go to J. T. Tittle, of Maintenance Shops, who is the proud papa of a baby boy born February 14, St. Valentine's Day, at the Oak Ridge Hospital, weighing eight pounds and 11 ounces. The Tittles named the little fellow Ronald Eugene. . . Sympathy is extended to B. H. Hobby, whose father passed away recently in Knoxville. . . A speedy recovery wish goes to J. E. Hargis' little daughter, Pat, who underwent a tonsilectomy recently in the Oak Ridge Hospital—however, she is out of the hospital now and doing fine. . . Sympathy is extended to V. J. Kinser, whose brother-in-law passed away recently in Athens, Tenn. . . Wilma Curtis and her husband, Stan, had as a recent week-end guest Wilma's cousin, Blaine Harvey, who is a student at the University of Tennessee. . . The department welcomes Harold Babb back to work after being out with the flu. . . Vacationers from the department last week were J. I. Skinner, F. E. Shipley, B. B. Addison, L. D. Burchfield and K. P. Emeri. . . Get-well wishes go to all the folks on the sick list who are W. E. Cantrell, E. Collier, A. W. McGinnis and L. A. Michael.

Congratulations are extended to S. J. Webster of Electrical Maintenance, at the birth of a baby daughter born February 16 in a Knoxville hospital. . . The department welcomes all the new members who are W. W. Wright, Cy White, J. C. Rogers, H. W. Kirkland, J. M. Roark, Jr., S. J. Webster and B. B. Williams. . . T. G. Crabtree was the only one on last week's vacation list.

Capt. J. H. Conner, of the Guard Department, and his wife made a recent week-end trip to Cincinnati, Ohio, to visit their son, Douglas, his wife and their little daughter, Rebecca Jo. . . K. G. Edgemon and W. W. Hall were on last week's vacation list. . . The department welcomes Capt. P. C. Dabbs back to work after overcoming the flu bug. . . Get-well wishes go to all the folks on the sick list who are L. E. Maxwell, M. S. Rodgers, C. E. Alcorn, S. H. Kesterson and J. Stapleton. . . Sympathy is extended to A. J. Jeffers, whose mother passed away last week.

J. G. Gibbs, of Buildings and Grounds, is spending a two-week vacation down in Georgia. . . W. M. Farr is vacationing this week. The Research Services Department extends sympathy to O. Webb, whose father-in-law died recently in Knoxville. . . Get-well wishes are extended to C. H. Close, who has been a patient in the Oak Ridge Hospital.

The Medical Department welcomes Penny Keene back to work

after a stay in the Oak Ridge Hospital.

The Cafeteria Department extends get-well wishes to C. W. Sweeten, Madeline Tackett and to Supt. George McNamee, who are all ill with the flu.

The Personnel Department wishes a speedy recovery for Virginia Phillips, who is a patient in St. Mary's Hospital in Knoxville. . . A welcome back to work goes to J. E. Campbell, who has been a patient in the Oak Ridge Hospital.

The Health Physics Department extends hearty congratulations to Rudy Pletz and Mrs. Pletz, who are the very proud parents of a baby boy born February 15, in the Oak Ridge Hospital, weighing six pounds. . . Get-well wishes are extended to R. C. Collier, who is ill at his home in Clarksville.

Congratulations are extended to Nancy Doane Baxter, a former Y-12er, who is the proud mother of a baby girl born February 16, at St. Mary's Hospital in Knoxville, weighing eight and one half pounds. The Baxters named their daughter Nancy Dianne.

The Alloy Department extends congratulations to H. D. Bozeman, who is the proud papa of a baby boy born February 13, in Fort Sanders Hospital in Knoxville, weighing six pounds and 13 ounces. They named the little fellow William Gregory. . . Congratulations are also extended to J. C. Bryan, who is the proud papa of a baby girl born February 16, in the Oak Ridge Hospital.

Then there was the imaginative Y-12er who wanted to hire an airplane to dump soap flakes on the rain clouds for an automatic automobile wash.

Planning and Estimating welcomes H. S. Steigerwald and J. W. Minchey to the roster.

Stores extends sympathy to J. L. Hamon, whose mother-in-law passed away in Oliver Springs last week. . . Get-well wishes go to John Henley, who is on the sick list. . . A welcome goes to Betty Simpson, who has returned to work after a toe operation at the Oak Ridge Hospital.

Congratulations go to J. W. Stair, of Chemical, who was married to Joyce Peppers on February 14, in Rossville, Ga. Joyce is the daughter of V. L. Peppers of the Field Maintenance Department. . . Jean Williams is visiting her folks in Memphis, Tenn., while on vacation this week. . . Sincere sympathy is extended to Hazel Lemons, whose father died recently in Sweetwater.

The Laundry Department extends wishes for a speedy recovery to Arbana Honeycutt, who is a patient in the Oak Ridge Hospital. . . A speedy recovery is also wished for Mattie Wright's son, after an appendectomy in a Harriman hospital. Harry Tiller is vacationing next week in LaFollette in order to do some spring farming.

Congratulations are extended to M. G. Crouch, of Uranium Processing, who is the proud papa of a baby daughter born February 15, in the Oak Ridge Hospital. The parents named their daughter Deborah Kay. . . Best wishes go to Sue Strange, who terminated last Friday to join her husband who is working in Aiken, S. C.

The Operations Division extends get-well wishes to Virginia O'Daniel, who is ill in the Oak Ridge Hospital.

The Tool Department extends get-well wishes for Shirley Brown, who is ill with the flu again.

Genevieve Bryant, of the Analytical Laboratory, went up to Erlanger, Ky., to visit her brother and sister over the week end. . . Martha McCombs visited her brother in Columbus, Ohio, over the week end. . . Get-well wishes are extended to Anne Smith and Addie Lynch, who are on the sick

Attendance Record

Dept.	MAJOR LEAGUE		Scheduled Standing	
	More Than 50 Employees	Percentage Absent	2-15-53	2-8-53
2008	0.0	1	7	
2077	2.1	2	3	
2690	2.3	3	2	
2108	2.7	4	15	
2018	2.9	5	4	
2617	3.2	6	10	
2002	3.8	7	6	
2619	4.1	8	16	
2618	4.6	9	5	
2790	4.7	10	19	
2091	4.95	11	11	
2014	5.02	12	8	
2773	5.6	13	18	
2739	5.65	14	12	
2003	5.72	15	14	
2060	6.2	16	1	
2015	6.8	17	13	
2001	8.1	18	17	
2142	8.2	19	9	

Group absentee percentage was 4.8 per cent, 1.7 per cent lower than the preceding week.

Dept.	MINOR LEAGUE		Scheduled Standing	
	15-49 Employees	Percentage Absent	2-15-53	2-8-53
2143	0.0	1	1	
2093	0.0	1	5	
2200	0.0	1	6	
2144	0.0	1	9	
2743	0.9	5	7	
2005	1.2	6	4	
2301	2.2	7	3	
2140	2.4	8	1	
2133	2.9	9	13	
2046	3.5	10	14	
2145	5.3	11	12	
2107	5.6	12	11	
2096	6.8	13	10	
2109	9.1	14	8	
2090	16.3	15	15	

Group absentee percentage was 3.9 per cent, 2.1 per cent lower than the preceding week.

The plant average for the week ending February 15 was 4.8 per cent, 1.8 per cent lower than the preceding week.

Reactor Engineering Meet Will Hear Talk On Friction

A discussion of "Friction" will feature the meeting of the Reactor Engineering Seminar set for 3 o'clock tomorrow afternoon, Thursday, February 26, in the second floor conference room of Bldg. 9204-1 in the Y-12 area. Prof. W. K. Stair, of the University of Tennessee and consultant to the ANP Division of Oak Ridge National Laboratory in Y-12, will be the speaker.

Rides Wanted, Offered

Want To Participate In Car Pool—From Robertsville Road to North Portal, straight day. R. G. Wiley, plant telephones 7425 or 7402, home telephone 2-1333, Oak Ridge.

Riders Wanted Or Will Participate In Car Pool—From Highland Ave. and Outer Drive via Illinois Ave., straight day. John Sewell, plant telephone 7466, home telephone 5-5449, Oak Ridge.

Four Riders Wanted—From Woodland Ave., N. W., Lonsdale and Lincoln Park sections of Knoxville, rotating shift. L. D. Best, plant telephone 7247, home telephone 3-5855, Knoxville.

Ride Wanted—From 3303 Keith Ave., N. W., Knoxville, Group No. 1. John Bosson, plant telephone 7077, home telephone 2-0410, Knoxville.

list . . . Tom and Ann Barton spent the week end in Bardwell, Ky.

Product Processing extends get-well wishes to Evelyn Collier and to Ann Fleener, who are on the sick list. . . Also get-well wishes go to Marie and Ernest Pickard's small son, who has been in the Oak Ridge Hospital with virus pneumonia—Ernest is in Electrical Maintenance. . . Sympathy is extended to Corine McDaniel, whose sister passed away last week in Chattanooga. . . Helen Underwood's husband, Maj. T. A. Underwood, has been stationed at Fort Sill, Okla., with the Army after a month's leave at home. . . Harry Painter was recently elected vice president of the Knox County Beekeeper's Association. Congratulations are extended to H. C. Nichols, who is the proud papa of a baby girl born February 6, at the Oak Ridge Hospital. . . Sympathy is extended to M. B.



Congratulations to—Jesse F. Tittle, Maintenance Shops, who became father of a boy February 14.

Howard R. Johnson, ANP, who became father of a boy February 14.

Maurice G. Crouch, Uranium Processing, who became father of a girl born February 15.

Rudolph Pletz, Health Physics, who became father of a boy February 15.

John C. Bryan, Alloy, who became father of a girl February 16.

These are births listed for Y-12 parents last week at the Oak Ridge Hospital.

Speedy Red Cross Drive Seen In Y-12

Continued from Page 1

Of the amount sought by the local chapter, 74.5 per cent or \$18,650 will remain in Oak Ridge for functions of the chapter here and the other 25.5 per cent or \$6,369 goes to the national Red Cross organization.

In answer to several queries as to Red Cross activities in the recent European flood disasters, Oak Ridge Chapter Chairman Leo Grant and Executive Secretary Mrs. Ruth Whiteside have announced receipt of information that the American Red Cross has authorized the League of Red Cross Societies to spend \$100,000 through The Netherlands Red Cross for relief work in that stricken nation. Junior Red Cross groups throughout the United States also are offering 60,000 gift boxes, 50 school chests and other assistance for rehabilitation needs of Dutch, Belgian and English children. The information was received here from W. W. Jefferson, manager of the Southeast Area of the Red Cross, Atlanta, Ga.

Two Y-12ers On Staff Of Playhouse Production

Dr. Francois Kertesz, of the Materials Chemistry Division of Oak Ridge National Laboratory in Y-12, is stage manager for the Community Playhouse production of "The Play's The Thing," to be staged Thursday, Friday and Saturday of this week at the Jefferson Junior High auditorium. James Muir, another Y-12er, is in charge of stage lighting for the production.

Kertesz first saw the play, written by Ferenc Molnar, in 1926 in Budapest, Hungary, and later met the playwright in New York.

Girl Scout Cookie Sales To Improve Camp Friendship

The second annual cookie sale sponsored by the Girl Scout Council of Oak Ridge now is underway and is scheduled to end on Saturday, February 28. Funds raised by the sale are to be used to improve Camp Friendship, the Girl Scout camp, including construction of a water line, a kitchen, tents and tent platforms. The cookies are being sold in a house to house campaign by the Girl Scouts and the Brownies, the younger girls' group.

Potter whose mother-in-law died last Tuesday.

Dorothy Tompkins, of Property, and her husband had as a week-end guest Dorothy's mother, Mrs. Florence Mullen, of Lake Geneva, Wis.

Former and present aching and paining Y-12ers have voted to rename this month—it is Feb-FLU-ary.

TUESDAY DEADLINE FOR ENTERING PLANT PIN MEET

Y-12 SPORTS

Grocers, Engineers Win Final Contests As Plant Loop Closes

The curtain was pulled last week on another successful season of the Y-12 Plant Basketball League.

In games played last week the Grocers barely edged the Rough House Five 42 to 40. The game was a nip and tuck battle all the way. Carter led the winners with 14 points. Kimball and Cater scored eight each for the losers. The Engineers trounced the Duds 62 to 37. The winners got off to a good start and finished the game in red-hot style. Cook whipped 20 points through the hoops to lead the winners. Winstead tallied 12 points to pace the Duds. The Guards were unable to place a team on the floor, thereby forfeiting to the Kilroys.

Final league standing follows:

Team	W	L
Grocers	14	1
Engineers	10	5
Rough House 5	8	7
Guards	5	10
Kilroys	5	10
Duds	3	12

Conservation Group Names Y-12 Men As Officers

An Oak Ridge group interested in wildlife conservation has formed a club to push the idea and elected officers February 19, all of them Y-12 employees. They were Evan Means, Electrical Maintenance, president; H. O. Finley, Assay Laboratory, vice president; E. E. Johnson, Planning and Estimating, secretary; and L. K. Flynn, Buildings and Grounds, treasurer. The group will meet at 8 o'clock Thursday night, March 5, at Ridge Recreation Hall, to adopt a name for the club and a constitution and by-laws.

Y-12ERS PUT IN LOTS OF MILEAGE OFFICIATING

Y-12ers who are members of the Oak Ridge Officials Association are compiling outstanding records this season in basketball.

Tom Crabtree, Milton Dickens and Cecil Chaney have officiated approximately 275 games, which is a lot of roadwork, even for a young man. The Association as a group will be handling six out of 12 district tournaments in East Tennessee, most of which are starting this week. Chaney and Crabtree will be working the district tournament at Lake City and Dickens will be at Rockwood.

Plant Leaguers Seek City Title

Five Teams Enter Class B Meet; Engineers Win

Five Y-12 Plant Basketball League teams will endeavor to bring the Oak Ridge Class B title to the plant in the city Class B tournament scheduled to get underway next Monday night, March 2, at the high school gymnasium.

Guards Only Team Absent.

Entering the event will be the Grocers, plant champions; Engineers, Duds, Kilroys and Rough House Five. Only the Guards will not play in the event.

Teams eligible to enter the Class B tournament include those in the Recreation League, plant leagues of the three Carbide installations and the Church League.

Meanwhile, the Engineers of Y-12 will meet the K-25 Little Blues for the Recreation League tournament title at 7:30 o'clock tomorrow night, Thursday, February 26. The Engineers reached the finals by trimming Radio Station WOKE by 58 to 55 after drawing a first round bye. The Little Blues edged out ORNL by 48 to 38 to win the honor of meeting the Engineers for the tournament crown.

WOKE Really Falls Short

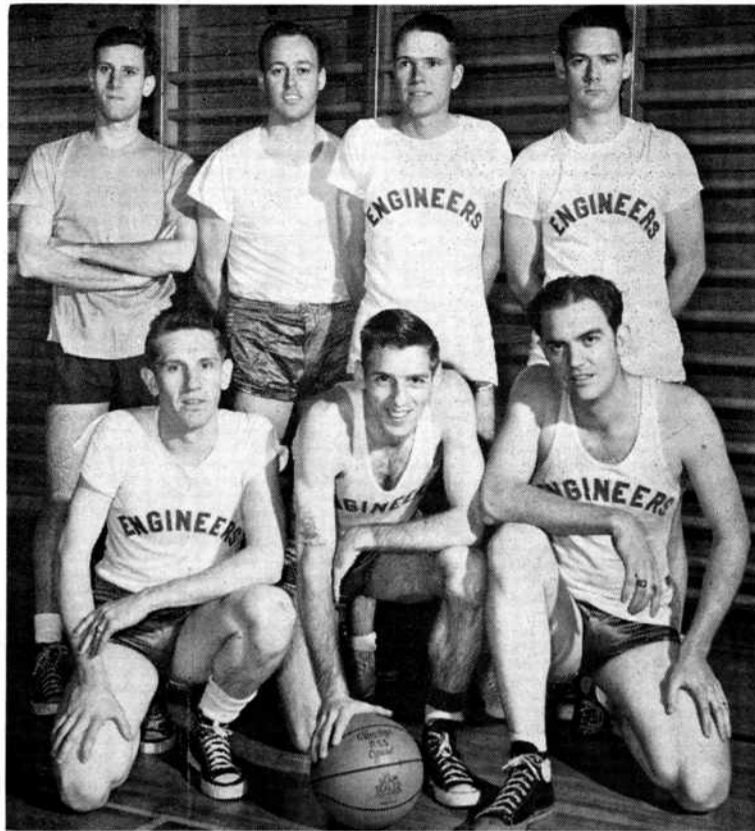
In defeating the WOKE quintet, the Engineers had to overcome a first period deficit of 16 to 12. At half time the count was knotted at 24-all and the Y-12 lads had a 44 to 37 advantage at the last rest stop. A determined rally by WOKE failed to overcome that advantage. Carter and Kennedy each scored 15 points for the Engineers and Howard got nine. Pharr kept the radio team in the contest by tallying 22 points.

Volleyballers End Slate In Third Place

The Y-12 volleyball team wound up its regular season in the A Division of the Oak Ridge City League last week by taking two out of three games from the Atomic Energy Commission outfit. The scores were 16-6, 15-10 for Y-12 and 15-10 for AEC. The results placed the Y-12ers in third place with a record of 11 wins and four losses. The A Division title went to Oak Ridge National Laboratory with a 13-2 mark while the K-25 team from Bldg. 1037 took the B Division crown.

ORNL and the K-25 group will play a three out of five game series for the league title before a double elimination city tournament will open on March 9. Entries for this event close March 2.

One out of every 10 servicemen received Red Cross help each month last year at a camp or hospital.



RUNNERS UP IN THE Y-12 PLANT BASKETBALL League and representing the plant in the Oak Ridge Recreation League is the Engineers team, pictured above. The team will meet the K-25 Little Blues for the tournament championship in the Recreation League Thursday. In front row, from left, are H. Phillips, H. Thomas and C. Sutton. In rear are J. Cook, W. Simmons, G. Howard and F. Kennedy.

Both Varsity Bowling Teams Impressive In Posting Wins In City Kegler Loops

The Y-12 varsity bowling teams romped to a pair of impressive victories last week in the Oak Ridge City Leagues. The Y-12 keglerettes handed the Management Services, Inc., a four point whitewashing to maintain a one point lead over the Rickers team. The men collected a three point victory from the Elks, enabling the Y-12 team to hold a 15 point lead over the second place K-25 outfit. The women hold a slim lead of one point.

In trouncing the MSI team the Y-12 lassies recorded game scores of 741, 751, 730—2222; against 619, 674, 667—1960. Juanita Reed paced the winners with scores of 194, 175, 152—521; followed by Mavis Koons 145, 136, 163—444; Ruby O'Kain 158, 140, 140—438; Dot Park 111, 170, 135—416 and Katie Williams 133, 130, 140—403.

The men regained some of their usual form, recording game scores of 893, 919, 864—2676 against 818, 824, 923—2565 for the Elks. Jack Spears led the Y-12 keggers posting scores of 186, 218, 213—617; followed by Joe Pryson 194, 235, 156—585; Ernie Cobble 188, 142, 200—530; Raymond Galford 172, 165, 139—476 and Frank Gragg 153, 159, 156—468.

Remember—Only you can PREVENT FOREST FIRES!

Has Beens Continue B Loop Win Streak

The Has Beens continued on the victory trail last week in the B League by clubbing the Cubs for three points. In other activities around the loop the Wolves advanced to second place with a three point victory over Bldg. 9211 while the Bumpers bumped the Tigers by the same margin. The improving Rippers took three games from the Swingsters while the All Stars and Rebels divided their contests with the Wasps and Bums, respectively.

Scoring honors for the night were well distributed, the Wolves marked up a 953 scratch game, high for this round, and posted a 2569 scratch series. Bldg. 9211 had a 1074 handicap game and the Bums had the best handicap series score, 2972. Higgins, Bldg. 9211, rolled a 232 single game boosted to a 267 with handicap. Potter,

Event To Open On March 14

Big Entry List Seen For Annual Tourney

Just a few days more—until next Tuesday, March 3, at noon to be exact, remain for the numerous men and women bowlers of the plant to enter the eighth annual Y-12 bowling tournament. The event, the biggest all-employee sports participation shindig of the year, will be staged March 14, 15 and 22 at the Jefferson alleys. Application blanks may be obtained at the Recreation Office, North Portal, or from league secretaries.

Practically every team in the four masculine and one feminine bowling league in the plant is expected to enter with many of the keggers and keglerettes entering singles and doubles and mixed doubles.

Many Trophies Are Offered

The entrance fee for each bowler in each event will be \$2, of which 90 cents will be used for bowling fees and the remaining \$1.10 for prize money. Bowlers not wanting to compete for prize money may pay the bowling fee alone and be eligible for some of the approximately 75 handsome trophies to be awarded by the Company.

All prize money will be returned in awards in the events for which it is paid in and full entrance fees must be paid at the time of filing the entry.

Shift Workers Get Preference

Preference in bowling time will be given only to shift workers and entry fees will be forfeited if the bowler fails to show up on time for a scheduled event.

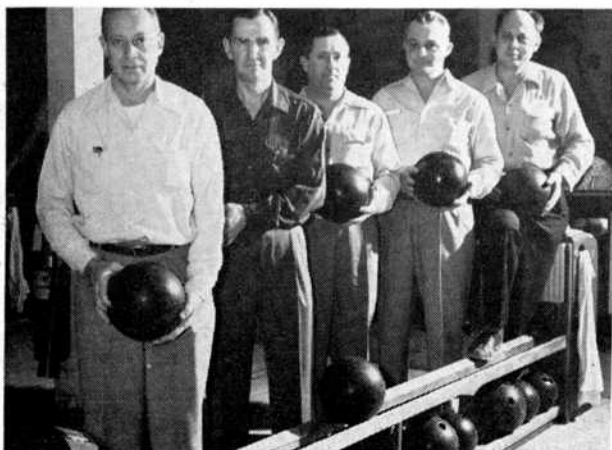
Individual handicaps based on averages as of February 1 will be used in the tournament. All Y-12 employees or any bowlers rolling in a Y-12 league who has bowled 15 games or more in any ABC or WIBC league as of February 1 are eligible to participate in the Y-12 tournament. Any former Y-12 employee is eligible to enter if he or she has bowled with a Y-12 team during the 1952-1953 season.

Substitutions may be made on teams but none will be accepted in singles play. Bowlers may roll for more than one but not more than two teams in the event.

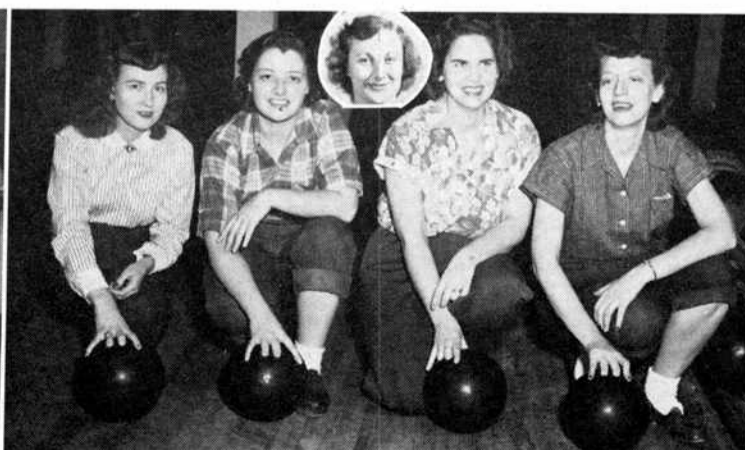
Tigers, came through with a 582 scratch series and Riddle, Rebels, ended the night with a 652 handicap series.

League standing follows:

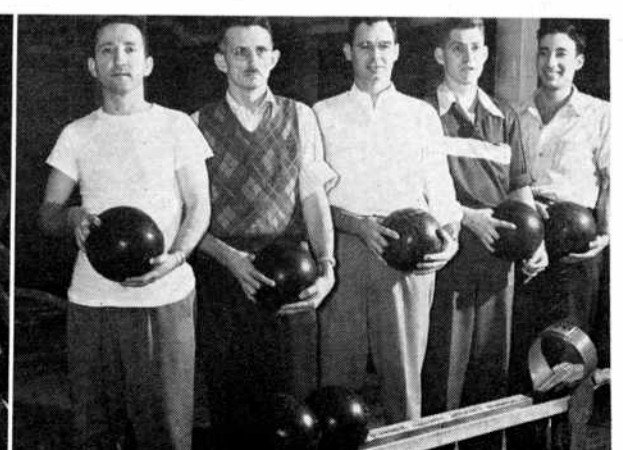
Team	W	L
Has Beens	35 1/2	8 1/2
Wolves	28 1/2	15 1/2
Tigers	27	17
Bumpers	26	18
Rippers	22 1/2	21 1/2
All Stars	21	23
Bldg. 9211	20 1/2	23 1/2
Rebels	20	24
Bums	18	26
Cubs	17 1/2	26 1/2
Swingsters	14 1/2	29 1/2
Wasps	13	31



SOME ARTISTIC SOUL MIGHT CALL THIS LAY- out "Beauties Between the Beasts" but it is just the Hooks bowling team of the C League, the Curvettes of the W League and the Angstroms, also of the C League,



from left to right. In the Hooks picture the keggers, from left, are Ralph Sigler, E. B. Galloway, C. W. Mason, Ed Greeley and V. W. Arms. The curvaceous Curvettes are M. Curtis, W. Brock, N. Gillum (inserted)



C. Banks and F. Housch. The Angstroms are Joe Mundzak, Bill DeRieux, Al Southern, Bob Cauble and Dan Schwartz.

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Permit No. 3**Cyclotron Likened To Giant Electromagnetic Slingshot Hurling
Charged Particles Across Magnetic Field At Tremendous Speed**

What is a cyclotron? That question is answered here in language for a layman by Dr. Fred Howard, of the Oak Ridge National Laboratory Electromagnetic Research Division in Y-12 for readers of The Bulletin in connection with the accompanying story on the new cyclotron now in operation in the Y-12 area.

A cyclotron is a sort of a giant electromagnetic slingshot. The missiles are usually protons, deu-

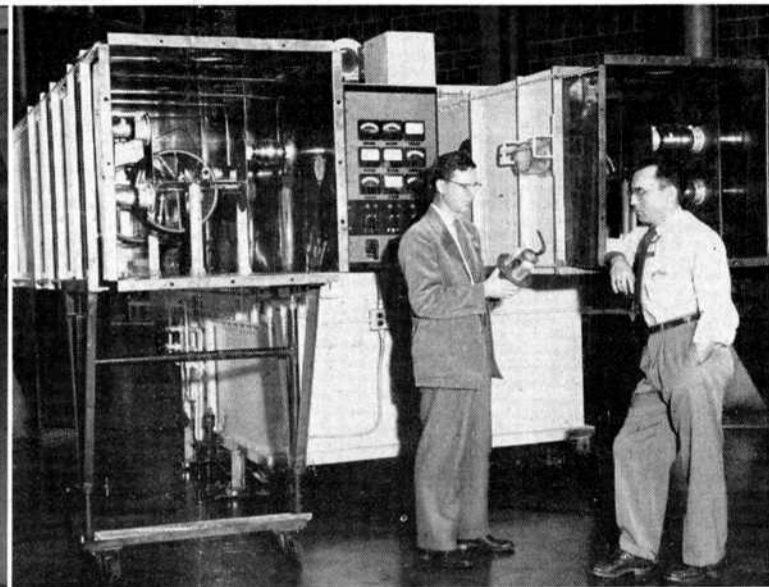
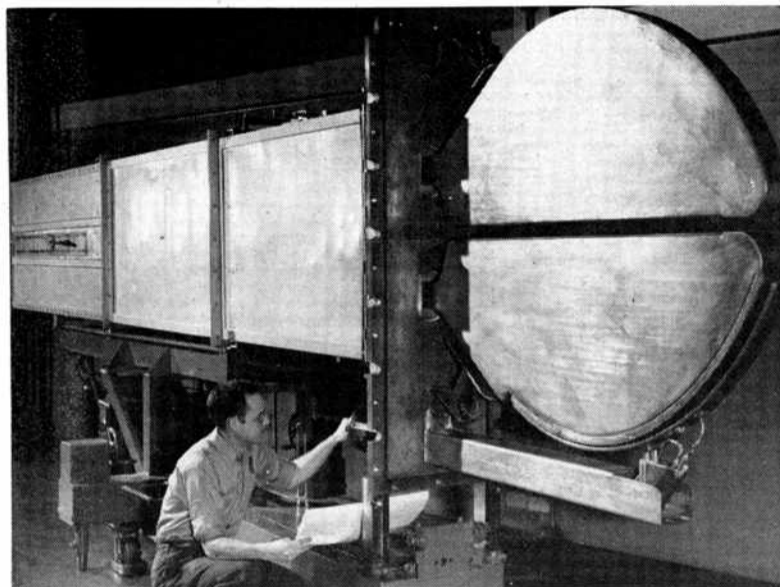
terons, or alpha particles; they are produced by ionizing atoms of ordinary hydrogen, heavy hydrogen, or helium. As these charged particles move across the magnetic field of a cyclotron they are forced into circular paths. Each time they go around, the particles receive two pushes from the high-voltage system. With each push, the particles go faster and travel in large orbits, spiraling outward from the center. In less than a

thousandth of a second the particles may be whirled about thousands of times and attain a velocity of thousands of miles per second. Then, at the outer end of the spiral, these high-speed particles are allowed to strike the target material.

The main parts of a cyclotron are the huge electromagnet, the large vacuum tank located in the magnetic field, the source of ions at the center of the tank, the high-voltage "dee" system for driving the ions, the radio-frequency oscillator which supplies the high-voltage pulses, and the target to be bombarded.

There are three types of such machines. The fixed-frequency cyclotron uses a steady magnetic field and evenly timed electrical pulses to accelerate the ions. The 86-inch cyclotron (Bldg 9201-2), producing 25 mev protons, is the most powerful machine of this type in existence. Higher energies are obtained from the frequency-modulated cyclotron, or synchrocyclotron, which uses the steady magnetic field but applies variable-frequency electrical pulses to accelerate "bursts" of ions. The 18-inch synchro cyclotron at Berkeley, Cal., has been used for the exploration of reactions produced by protons at energies up to 380 million electrons volts (Mev). The giant proton synchrotrons use both a pulsed magnetic field and frequency-modulated electrical pulses to accelerate small bunches of ions to extremely high velocities. Such a machine at Brookhaven National Laboratory has recently accelerated protons to 2300 Mev and a beva-tron is being constructed at Berkeley designed for 6000 Mev.

In the past 20 years, 51 cyclotrons of all types have been built, 36 of them in the United States. Approximately 20 more are being built or are in the design stage.



THE DEE SYSTEM OF THE NEW CYCLOTRON IN Y-12 IS INSPECTED BY J. E. MANN before installation in the magnet in picture at left. Engineers Mann, J. S. Luce and E. R. Wells were responsible for the design and assembly of the mechanical equipment. At right above Engineers M. R. Donaldson and H. C. Hoy are shown before the oscillator and related circuits of the cyclotron that they were responsible for designing and constructing along with M. L. Winton, not shown. At bottom right are Dr. R. S. Livingston, standing, director of the ORNL Electromagnetic Research Division in Y-12; and Alexander Zucker, physicist, in direct charge of the experimental program carried out on the cyclotron.

**Cracker Jax Crack
Kemps To Tie Loop**

The Cracker Jax toppled the league leading Kemps by two points last week in the W League to go into a tie for the first slot. The Controllers kept right on the heels of the league leaders by nipping the Alley Cats for two points. The Mix-Ups defeated the Gutter Cats by a pair while the Curvettes curved the Striketees by the same margin. The standings are very close in the league and it looks like a close battle all the way.

The Kemps swept team scoring honors for the night posting a 655 single game, boosted to a 937 with handicap, rolling a 1906 scratch series and a 2722 handicap series. Juanita Reed, Controllers, had the best scratch scores of the night, rolling a 174 game and 469 series. Desma Hutcheson, Kemps, came through with the top handicap scores, a 217 game and 590 series.

League standing follows:

Team	W	L
Kemps	16	8
Cracker Jax	16	8
Controllers	15	9
Alley Cats	14	10
Mix Ups	10	14
Curvettes	9	15
Gutter Cats	9	15
Striketees	7	17

**Red Hot Grocers
Get Tie In D Loop**

The red-hot Grocers climbed to a first place tie with the Peons last week in the D League alley activities by taking a three point victory from the Activators. The Peons were cold as a block of ice and dropped three points to the Toppers. The Isotopes moved out of the cellar by vanquishing the Vectors by three tallies while the Old Men trounced the Split Kids, also by a three point margin.

The Grocers swept team scoring honors for the night by posting a 813 single game, boosted to a 992 with handicap, rolling a 2388 scratch series and a 2925

**Remember—Only you can
PREVENT FOREST FIRES!****Ezy Aces Advance
In E Loop Standings**

The Ezy Aces climbed into the first division in the E League last week by whitewashing the Pin Wobblers. The Cut Ups remained at the top of the league by taking a three point victory from the 66s, who slipped into fifth place through the defeat. The Stinkers and Peglers defeated the Hobslurps and No Pins, respectively, by three point margins.

Frank Gragg, Cut Ups, had a good night rolling a 597 scratch series, boosted to a 678 with handicap, both scores being high for this half of the season. Arnold Tiller, 66s, posted a 224 single game and increased his score to a 252 with handicap. The Ezy Aces tallied a 1007 single game, boosted to a 2438 with handicap and went on to roll a 2910 handicap series. The 66s had a 851 scratch single score which was tops for the night.

League standing follows:

Team	W	L
Cut Ups	20	8
Stinkers	18	10
Peglers	18	10
Ezy Aces	17	11
66s	15	13
Pin Wobblers	13	15
No Pins	6	22
Hobslurps	5	23

handicap series. Individual honors for the night went to three different bowlers. Duckworth, Grocers, rolled a 540 scratch series and boosted his score to 639 with handicap. Erwin, Vectors, posted a 201 single game and Coleman, Old Men, came through with a 256 handicap game.

League standing follows:

Team	W	L
Peons	20	8
Grocers	20	8
Activators	16	12
Toppers	15	13
Old Men	13	15
Split Kids	11	17
Isotopes	9	19
Vectors	8	20

**Angstroms Bolster
C Bowling Loop Lead**

The Angstroms strengthened their hold on first place in the C League last week by taking three points from the second place Guards. The Rusty Five moved into a tie for the second slot by nipping the Hornets by a margin of three, while the Uranium Control Junior Varsity and Eutectics trounced the Hooks and Moles, respectively, by three points.

Smith, UCJV, was in rare form rolling a 204 scratch game, increased to a 256 with handicap, a 514 scratch series and a 670 handicap series. Four teams divided scoring honors for the night, the Hooks had a 758 single game, the Moles posted a 953 handicap game, the Rusty Five came through with a 2195 scratch series and the UCJV ended the activities with a 2808 handicap series.

League standing follows:

Team	W	L
Angstroms	23	5
Guards	17	11
Rusty Five	17	11
UCJV	14	14
Eutectics	13	15
Hornets	12	16
Moles	11	17
Hooks	5	23

**Chemical Engineers Name
Officers For 1953 Term**

At a recent meeting of the Knoxville-Oak Ridge section of the American Institute of Chemical Engineers, the new officers for 1953 presided and outlined tentative plans for the coming year. The new chairman of the section is W. B. Allred, Chief of the Oak Ridge AEC Reactor Division. Other newly elected officers are: Chairman-elect and Program Chairman, John S. Shacter. Head of the Process Design and Analysis Department at K-25; Treasurer, Robert H. Nimmo, K-25; Secretary, H. C. McCurdy, ORNL; Directors, Dr. Robert M. Boats, Head of the Chemical Engineering Department at Universi-

**New Cyclotron Built
In Y-12 Plant Area**

Continued from Page 1
designed specifically to accelerate nitrogen ions, relative weight 14. Nitrogen gas is fed into the ionizing are of the ion source, and the magnetic field and the radio-frequency system are tuned to accelerate only those nitrogen atoms from which three electrons have been stripped. As the radio-frequency system drives the nitrogen ions at ever greater velocity, they spiral outward from the center of the magnetic field. The target material is placed so that the ions strike it when the radius of their orbit is 25 inches. They then have an energy of about 25 Mev and are traveling at about 11,000 miles per second. The ion current measured at the target is only one-millionth of an ampere but, even then, two million million nitrogen ions strike the target each second.

This newest cyclotron is of the fixed-frequency type designed to operate at a frequency of 5.1 million cycles per second. The magnet

of Tennessee; Floyd Culler, ORNL; and Fred N. Peebles, Assistant Professor of Chemical Engineering at U. T.

The chairman designated the following men as committee heads: Membership Chairman, Bob Milford, ORNL; Hospitality Chairman, A. Carl Jealous, ORNL; Chairman of Committee on Seminars, Dent Davis, AFC; Publicity Chairman, D. J. Crouse, ORNL.

pole pieces are 63 inches in diameter, the gap six inches, and the field strength 15,000 gauss. The power input to the oscillator is 30 kilowatts, and the radio frequency system operates at 60 kilovolts dee-to-dee. (The "dees" are the hollow, D-shaped, charged electrodes within which the ions circulate). An internal beam of over one microampere has been measured at the 25-inch radius. A deflector system has recently been installed which makes it possible to direct the nitrogen ions into an external target.

First Tested In 1952

Construction of the cyclotron was authorized by the Atomic Energy Commission in April 1951. Conversion of obsolete equipment in the Y-12 plant made it possible to have the machine ready for test operation in May 1952. New 63-inch pole pieces were fitted to an existing magnet, power supplies and vacuum equipment were converted, and the existing building and utilities prepared for use.

The oscillator and dee system were designed and assembled by the Electromagnetic Research Division and parts were fabricated in the Y-12 Plant shops. The dees are mounted in a vertical position, one above the other. The dee system and the oscillator cabinet are both mounted on trucks so that the cyclotron can be disassembled and reassembled in a few hours.

The 63-inch nitrogen cyclotron is being used in the study of cyclotron design and performance problems. A larger machine, the 86-inch cyclotron, which produces 25-Mev protons, is being used in studies in nuclear physics, for the production of radioisotopes and in biological studies.

OHIO INTERVIEWS STARTED

The Portsmouth, Ohio, Times, has announced that the Goodyear Atomic Corp. has begun interviews for employment at the Ohio atomic plant.